



Redefine StarTran's Operational Approach and Increase Services

ACTIVITY PURPOSE AND OVERVIEW

The purpose of this MMT recommendation is to complete a series of proposed near term changes in StarTran's current fixed route services and to redefine over the longer term how StarTran operates its fix route services.

StarTran's fixed route transit services form the core of the system's operation. StarTran's 20 regular transit routes (and Downtown circulator) transport nearly 1.5 million passengers each year. This accounts for nearly 97 percent of all the passenger trips carried on the system. This service operates six days a week (excluding Sunday), from 5:15 a.m. to 7:10 p.m. on weekdays, and 5:55 a.m. to 7:10 p.m. on Saturdays. During these periods, StarTran equipment travels almost 1.4 million miles annually.



Implementation of the recommendations spelled out in this section of the Report would result in: (1) StarTran service adjustments (i.e., route additions and deletions, and expanded service) over the coming year; and (2) a critical reassessment of how StarTran presently provides fixed route services with the potential for wholesale changes in the system's operational approach.

ACTIVITY DESCRIPTION

This section takes a closer look at the near term changes in routes and services in StarTran recommended by the Multi-Modal Transportation Task Force and at how the future fixed route operations of StarTran can be examined and changes implemented.

Recommended Near Term StarTran Service Changes

There are a number of near term service changes StarTran could begin to implement in an effort to change and expand its services. The purpose of making such near term changes would be to improve service levels for StarTran's regular fixed-route system. Many of the service changes would require increases in operational funding. Such a commitment by the city would send a message that the transit system is a high priority for the community.

The Multi-Modal Transportation Task Force has identified a number of near term transit service changes that StarTran work to implement immediately. With implementation of all, most, or some of these service changes, a review of the effectiveness of each change can be conducted and the results of the changes can then be used to further adjust services in a manner that best serves the community.

The following are the suggested immediate service changes:

◆ Establish Core Service Area and Increase Service Levels within that Core Area

In an effort to increase the level of transit service for patrons of the StarTran fixed-route system and in turn increase StarTran ridership, it is suggested that StarTran identify a core service area within which transit services would be concentrated and expanded. Existing routes would be shortened based on a minimum threshold of boardings per day per transit stop.

A threshold of 5 or less boardings per day per stop should be used to identify where a particular route should end its service. The following map of the StarTran fixed-route system identifies where existing routes would be ended based on this standard minimum boarding level.

As a result of this truncating of routes, **reallocation of operational costs** can be conducted. It is estimated that approximately \$1.4 million in annual operational funding reallocation could occur by limiting the length StarTran routes in this manner. The reallocated funding would be **used to increase services** in the identified core area by decreasing headways to 15-25 minutes during peak times and 30-40 minutes during non-peak times. Currently headways are 30 minutes during peak times and 60 minutes during non-peak times. No additional operational costs would be incurred under this scenario.

Under this scenario, transit service would continue to be provided to major trip generators, including public schools, beyond the core service area.

Also, special transportation HandiVan services are assumed to continue to be provided to the entire city.

◆ Consider Providing Taxi Service to Patrons Outside Core Area

If it is deemed desirable to continue to provide transit service to those that live and work



outside the identified core service area, another form of service could be offered in this outer area. Additional costs would be incurred, however, if such services were implemented. As an example, a taxi service could be established to transport patrons that live and work beyond the core service area. This service would transport them to the end of a bus line at which point the patron could "transfer" on to the bus route at no additional charge. The patron would pay for the service at the standard transit fare price, and StarTran would pay for the balance of the taxi fare.

It is estimated that such a taxi service could cost an estimated \$2 million annually to serve the 684 current bus riders who use existing bus service outside of the identified core area. Approximately \$280,000 in additional federal funding would be available if this additional taxi service was utilized.

◆ ***Extend Transit Service Hours and Days of Service***

The Multi-Modal Transportation Task Force also recommends hours of operation be expanded so that StarTran can provide transit services to those who could use bus service later in the evening and on weekends.

- ◆ **Weekday service hours should be extended** to include the 7:10 p.m. to 12:00 midnight time frame.
- ◆ **Saturday service should be extended** to match non-peak weekday service until midnight.
- ◆ **Sunday service should be reintroduced** to match the current partial Saturday service. It would operate until midnight.

◆ ***Fully Implement Modified Grid System***

The modified grid system was recommended for implementation by a "StarTran Task Force" in 2000, and is referred to in the current City/County Comprehensive Plan. The City-County Comprehensive Plan indicates this approach should be used and enhanced by StarTran in providing fixed route services to Lincoln. Specifically, the Comprehensive Plan states that in the long term, StarTran should "Expand the modified grid system while maintaining the productive elements of the radial system serving Downtown. Reallocate less productive radial service into grid services by targeting emerging mixed-use activity centers and corridors."

While the implementation of the modified grid system began in 2000, full implementation has not occurred due to budget limitations. Per the recommendations of the StarTran Task Force, five express routes were deleted with the savings utilized to implement the initial north/south grid route on 27th Street, the 27th Street Shuttle, in 2000. Also in 2000, the Midtown Route was renamed the 48th Street Shuttle with increased service to 55 minute headways, similar to that of the 27th Street Shuttle. This represented the second north/south grid route. Budget decisions resulted in the 48th Street

Shuttle service being reduced to average 90 minute headways in 2001. The 48th Street Shuttle continues to operate at the reduced service level. Implementation of additional north-south grid routes to continue the implementation of the modified grid system have been delayed due to budget constraints.

The Multi-Modal Transportation Task Force believes that near-term options that will realize further implementation of the modified grid system should be attempted. Suggested options include:

- ♦ Return the 48th Street Shuttle to 55 minute headways to improve service.
- ♦ Implement a third north-south grid route in the 66th/70th Street corridor. Such an addition would serve growing areas of southeast and northeast Lincoln and offer improved transfer opportunities.
- ♦ ***Implement Pilot Project for Low Income Patrons of Bus Services***

Over the past 8 years the City of Lincoln has allocated \$55,000 annually to provide bus transit service to low income patrons through various human services agencies. The results have been favorable. All three agencies - Community Alternatives of Nebraska, Lincoln Action Program, and the State Health and Human Services System - have provided bus tickets and bus passports to their clients at a reduced rate. However, it is estimated that the demand for access to such reduced fares is much greater than what is available through this program. Many potential riders of bus transit do not use the bus because they cannot obtain these reduced fair tickets and passports and they cannot afford to purchase full-fare tickets.

The Multi-Modal Transportation Task Force proposes that all eligible low income patrons be provided the opportunity to purchase a StarTran monthly "passport" for \$5.00 per month. This would allow them to take unlimited rides on the StarTran fixed route system. Eligibility would be in accordance with the federal poverty level guidelines used most often by non-profit agencies and the State Health and Human Services System. Administration of this provision would be provided by Lancaster County Human Services.

Of the \$55,000 granted in the past by the city, \$50,000 would be returned to StarTran and \$2,500 would be distributed to MT Kitchen to be used for homeless persons with absolutely no income with which to purchase passes. The remaining \$2,500 would be retained by Lancaster County Human Services to maintain accountability records for the program.

After 6 months of this program, a review of the results would occur to see how many low income passes are purchased and how much this program costs StarTran. Adjustments would be made accordingly based on the results of this pilot effort.



The Future of StarTran's Fixed Route Services

StarTran's fixed route services stand at a crossroads. The basic route structure presently operated by StarTran has changed little over the past half a century. The system's 20 major routes largely mirror the streetcar/bus system operated well into the middle of the 20th century. Modest service refinements and route extensions have been made mostly as a result of urban growth and shifts in land uses across the city.

Near term changes in StarTran operations have been recommended as part of this Report. These changes should be made immediately and their impacts on ridership, revenues, and overall service levels carefully monitored and critiqued.

These operational changes notwithstanding, **StarTran must also aggressively re-think the approach it currently employs in providing transit services to the citizens of Lincoln.** The community's shifting travel behavior, changing user markets, and expanding access to other modes have radically altered the public's perception – and resulting usage – of transit services.

NOW is the time to critically examine the StarTran's present service design and, as appropriate, take **bold and decisive steps** to revamp StarTran into a 21st century transportation provider it is capable of being.

This effort will take time, resources, and, perhaps most all, the community's willingness to change how StarTran delivers fixed route services. There will be clear divisions of opinion on how best to pursue alternative courses of action for StarTran. Change does not come easily, nor without a price. The community must be prepared to address this matter candidly and forthrightly. **Hard choices will have to be made.** Not everyone's interests can be served - and not everyone's wishes met.



Changing the way StarTran provides traditional transit services will require the City to address not only the service on the streets of Lincoln but other public policies as well – such as the level and continuity of funding for transit operations, overall transportation administration and management, and land use and development goals.

While many of these latter issues are discussed separately in this Report, this section of the Report tackles the difficult question of how best to reposition StarTran as Lincoln's public transportation system for generations to come. This section outlines a process for establishing an "Operational Action Plan" for StarTran – in short, a strategy for offering transit services reflecting the needs of a growing and evolving community possessing a diversity of mobility needs and challenges.

StarTran Operational Action Plan Approach

Assuming funds are available, within a year and a half from the acceptance of this Report by the elected officials, a draft "StarTran Operational Action Plan" for StarTran should be delivered to the Mayor and Lincoln City Council. This Action Plan should delineate a detailed multi-year program for revamping StarTran's service approach. This service approach should consider both the near (i.e., two year) and longer term (i.e., five to twelve years) transportation and mobility requirements of the community, as well as provide for the logical transformation of StarTran services to meet these mobility needs.

Completion of StarTran's Operations Action Plan can be undertaken following a four step process:

1. **Service Standards and Policies.** These basic programming elements articulate the community's perception of what makes up a reasonable and acceptable level of transit service. They are policy guidelines defining the quality of the service as well as minimum performance levels. The objective of this task is to develop service standards and policies to serve as the basis for evaluating current services and to guide the design of new or improved services. The two general categories of standards to be developed include:

- ◆ **Service Design Standards** guide the design of the services. These standards include service availability, service directness, frequency, and span (e.g., hours and days) of service.
- ◆ **Service Performance Standards** help assess the productivity of existing services. These standards include on-time performance, passenger utilization, and farebox return.

The service standards and policies should be developed, reviewed, and agreed to by key community stakeholders, users of the bus service, the Mayor, City Council, and city staff.

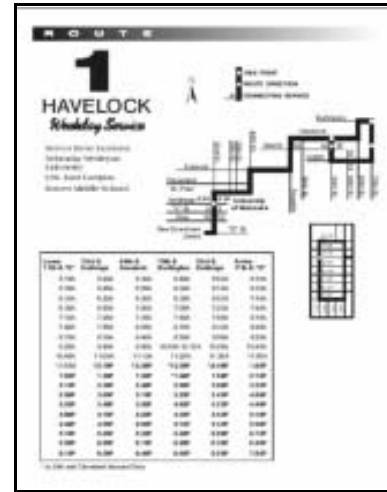
2. **Service Assessment.** The second task examines deficiencies in current services and identifies opportunities for new services and/or service improvements. This task relies heavily on the service standards and policies established in the previous task. This step also assesses StarTran passenger usage data by time-of-day, local demographic data, travel behavior information, and land use/activity patterns and trends.
3. **Service Options.** This task takes a hard look at the operational options available to StarTran for delivering public transit services. This critical review builds upon the previous two tasks by considering service design standards and performance standards relative to a range of operational techniques. (A fuller description of the type of service approaches that could be considered as part of this analysis are described later in this section.) Various issues to be considered as part of this task include:
 - ◆ **Operational Factors.** These can include adjusting service headways, turnbacks or short-turning of buses to optimize equipment utilization, and route branching (or

trimming) to provide a desirable level of coverage while economizing the number of buses required.

- ◆ **Scheduling Adjustments.** These can include running time adjustments to improve on-time performance, schedule coordination to improve transfer connections, and space of service modifications.

- ◆ **Routing Improvements.** These can include route extensions to respond to existing and proposed development; route modifications to possibly improve service directness and on-time performance; and new routes to satisfy present and prospective needs.

- ◆ **System Changes.** These can include service redistribution to improve overall efficiency by re-allocating resources from less productive areas and/or routes. Other service type changes may be reviewed to determine whether or not fixed route service or demand responsive service is a more appropriate mode for selected markets.



4. **Recommended StarTran Operational Action Plan.** The result of this effort would be a detailed "StarTran Operational Action Plan" for StarTran to follow in implementing a revised service delivery approach. This strategy should include specific routing and service design findings and an analysis of the financial commitment required to complete the operational transition and sustain operations. Also, the recommendations should include a description of a marketing and informational program to ensure that the StarTran user community understands the changes being made in the system and how to effectively utilize the re-designed services.

Operational Design Options

The "StarTran Operational Action Plan" described above should seriously consider a wide range of options for delivering StarTran services. This section briefly outlines a number of approaches employed by public transportation operators to deliver services to their ridership. The Action Plan may not need to evaluate all of the options shown below, but should review a variety of potential service design options so their potential can be assessed against the Lincoln transit market. The design options that might be considered include:

- ◆ **"Radial Pulse System" with Downtown as Single Hub** – At one time or another, most American communities have operated a "radial pulse system" with transit services focusing on their downtown. Downtowns have long been the focal point of transit operations – they were traditionally the center of commercial and retail activity for most cities. This has long been the approach used in Lincoln and remains the basis of transit services to this day.

This service approach brings virtually all of the routes into the downtown area to meet

at a central location. Ideally, services are timed so the buses converge at about the same time at a single stop. This approach allows passenger not destined for downtown to easily transfer to another route. Unfortunately it can also add to the travel time for such users of the system who find it necessary to travel to the downtown and then out again on a separate route to reach their destination. At the present time, about twenty-five percent of StarTran riders need to transfer to complete their trip on the system.

The downtown-oriented strategy is most effective when the major transit destination is the urban core and when the system structure allows for comparable route length (i.e., all the routes take about the same time to operate from and to the downtown).

- ◆ **"Radial Pulse System" with a Non-downtown Site as Single Hub** – Though less common, some transit operations employ a "radial pulse system" approach that does not use downtown as its hub.

As part of any future route analysis for StarTran, such a non-downtown based hub approach should be given serious consideration. This recommendation is based on a changing local transit market, the urban growth pattern of the past several decades, and the expansion of off-street parking capacity in Downtown Lincoln.

While Downtown Lincoln remains a major center of employment, StarTran, and its ridership base might be better served if the Downtown core did not serve as the system's focal point. Some "non-downtown" sites where a StarTran hub (i.e., multi-modal transfer point) could potentially be located include:



- ◆ Adjacent to or integrated with the University of Nebraska-Lincoln City Campus
- ◆ Antelope Valley Project Area/East Downtown Area
- ◆ Near 48th and O Street

Even if the main StarTran hub were to be shifted out of the core, Downtown would still be served by transit. Shuttle buses and/or regular routes could still provide service to the Downtown core from the newly located hub.

- ◆ **"Radial Pulse System" with Multiple Hubs** – A third derivation on the "radial pulse system" approach calls for several locations to serve as StarTran hubs. Given the sys-



tem's present size and service level, it is probable that there would be no more than two such operational hubs. Downtown and another location to the east could possibly be identified as transit service centers and operate in tandem as part of an overall dual-centered pulse system.

- ◆ **Grid System** – A relatively common transit service design is the "grid system." This approach is often used in larger communities having a checkerboard pattern of streets – a pattern often found in midwestern cities. Buses operate in a shuttle fashion along major streets, typically in a north-south and east-west fashion. Where the route criss-cross, transit passengers transfer between routes in order to reach their destination. This service design can add to the overall number of transfers and can involve increased operating and capital funding.
- ◆ **Modified Grid System** – In an effort to reap the benefits of several approaches, many public transit systems operate a "modified grid system." This approach combines the grid system with the radial system design. The majority of the routes operate following the traditional radial approach around a single hub, with a small number of routes criss-crossing them as these other routes operate following a more linear pattern (i.e., shuttle style.)

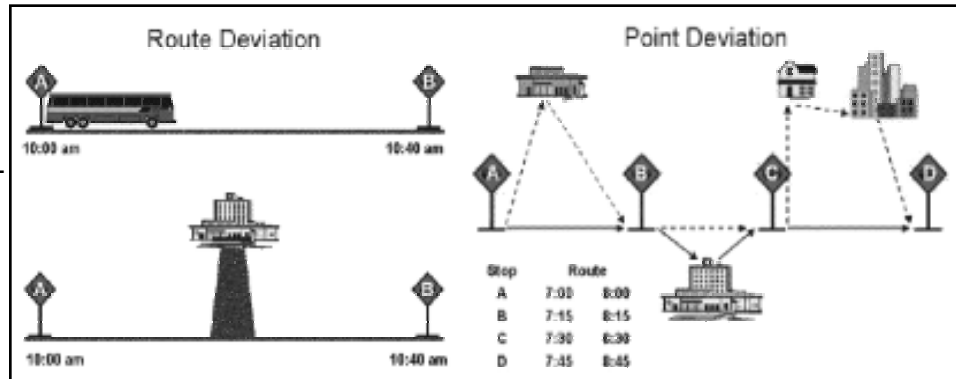
The City-County Comprehensive Plan indicates this approach should be used and enhanced by StarTran in providing fixed route services to Lincoln. Specifically, the Comprehensive Plan states that in the long term, StarTran should "Expand the modified grid system while maintaining the productive elements of the radial system serving Downtown. Reallocate less productive radial service into grid services by targeting emerging mixed-use activity centers and corridors." StarTran has worked to implement this program objective and presently uses the "modified grid system" on a limited basis, with the 48th Street Shuttle providing the "grid service" over the main radial pulse network.

- ◆ **Multidestinational System** – A more recent but less commonly used approach is called a "multidestinational system." This approach eschews hubs and operates more like a grid system, although the routes do not follow a rigid grid pattern. Routes connecting major activity centers typically follow more meandering patterns (than do routes as part of grid systems) and penetrate residential neighborhoods and connect with smaller centers along the way. As with the grid system, a higher incidence of transferring can occur as passengers use a network of routes to reach their destination.

This route design approach is relatively new in the realm of transit operations with a handful of providers installing such services in the 1980's. The most prominent larger cities using the multidestinational system include San Diego, Portland (OR), and Sacramento. Also to a certain degree, the City of Boulder's "Hop-Skip-Jump-Bound-Dash-and-Stampede" service employs many of the multidestinational concepts. The Boulder system uses a combination of route types that operate in various configurations and varying route lengths.

- ◆ **Route Deviation** – Though the "route deviation" approach has been around since the late 1970's, its implementation has been very limited. Route deviation services have generally only been used in rural, suburban, or small urban areas.

Under this approach, fixed route transit vehicles are allowed to "deviate" from their normal route for a short distance to pick up a rider who has contacted a central dispatcher. In most cases, prospective passengers must call in



advance – anywhere from an hour to a full day – to request the service. The route deviation approach presents scheduling problems for the transit operator and can prolong the trip time of other passengers utilizing the regular fixed route service.

- ◆ **Demand Responsive** – As the name implies, "demand responsive" transit providers are characterized by flexible routing and scheduling operating "in response" to specific requests for service. Vehicles typically provide door-to-door service, much as a traditional taxi service might provide. Individual passenger trips are often combined in order to increase the efficiency of the operation. Advanced requests for service are required, with such calls needing to be made anywhere from a day to a week in advance. "Demand responsive" operations are often associated with the type of service provided to persons with special mobility needs (i.e., generally unable to use regular fixed route services because of physical, mental, or other mobility limiting conditions.)
- ◆ **Other Service Considerations** – In addition to reviewing the potential major reorientation of StarTran system, this analysis may wish to address a number of other specialized service issues:
 - ◆ *Downtown Loop* – The present "Downtown loop" route operated by StarTran was put in place in 1976. At the time of its installation, it was intended to expand the geographic area covered by all of the major StarTran routes within Downtown. As alternative service delivery approaches are assessed in the future, it would be timely to also consider the viability of continuing the Loop as it is currently operated. While it may be found to be the best possible routing, its configuration should be reexamined in light of any potential service changes that may be proposed.
 - ◆ *UNL Evening Services* – Depending upon what service options are found viable for the Downtown area (including the "Shuttle" service being examined as part of the Downtown Master Plan process), it may also be valuable to consider a service in the Downtown/UNL area to serve student needs.



ACTIVITY TIME LINE AND RESPONSIBILITY

Near Term StarTran Service Changes

Implementation of the suggested near-term service changes should begin immediately upon submitting this Report to the Mayor. The breadth and immediacy of many of these changes will be subject to needed funding provisions.

The primary responsibility of implementing these near term changes in service rests with the StarTran staff and the StarTran Board as the administrators of the existing bus system. With direction from the Mayor and other elected officials, StarTran will be able to implement and monitor these changes. The results of the changes that are implemented should be provided to the Mayor, other elected officials, and the StarTran Board periodically to monitor the effectiveness of the adjustments and to discuss further changes if necessary or desired.



Longer Term System Redefinition

As noted earlier in this section, a "StarTran Operational Action Plan" should be prepared and presented to the Mayor and other elected officials no later than 18 months from the acceptance of this MMT Report.

The "StarTran Operational Action Plan" is a critical element in defining the future role to be played by StarTran – and transit in general – in the overall performance of Lincoln's transportation system. If serious consideration is to be given to significantly revamping StarTran operations, this effort should begin immediately. It will take time and resources to effectively identify how StarTran services may be altered and additional time and resources will be needed to make the changes happen.

The primary responsibility for formulating the "StarTran Operational Action Plan" logically falls upon the staff of StarTran. As Lincoln's principle provider of transit services, they possess the most immediate understanding of how StarTran presently functions and of the constraints and opportunities under which they work. In pursuing the development of this Action Plan, StarTran staff should be initially charged with the task of preparing a detailed work program showing how and when they would complete the Plan.

Alternatively, a staff member from another Division within the Public Works and Utilities Department, or another agency, could be assigned the role of Project Manager. This person would need to work closely with StarTran staff to ensure the technical factors of route restructuring and scheduling design are being properly considered. Under this approach, StarTran staff

would then play a more subordinate role in the completion of this analysis but still remain intimately involved in the review process.

In either case, supporting this endeavor should be staff members from other city and county departments and agencies, and other divisions within the Public Works and Utilities Department.

Community oversight of this analysis should be broadly representative, and include elected officials, StarTran Advisory Board Members, StarTran users, non-StarTran users from the Lincoln area, and representatives from other public and private entities with a direct interest in the long term services provided by StarTran.

Given the technical nature of this review, outside professional assistance is likely to be necessary. This assistance should be used in identifying potential markets, defining realistic service delivery options, and crafting a detailed operational plan for implementation by StarTran following adoption of the Plan by the elected officials. Public involvement activities must be an integral part of this analysis, and should be undertaken throughout the course of the review.



ACTIVITY RESOURCE NEEDS

Near Term StarTran Service Changes

The proposed near term service changes suggested by the Multi-Modal Transportation Task Force would require increased funding for StarTran operations. One exception to this required additional funding is the suggested change to establish a core service area to increase services using reallocated operational funding from outside the core service area. A funding source to cover the additional service suggestions would need to be identified as part of the City's budget process. Ideally funds would be allocated to begin implementation of these proposed changes as soon as possible following the completion of this report.

Longer Term System Redefinition

As noted above, the detail and technical character of this activity is likely to require outside assistance. Depending upon the final scope of work, the resources needed to complete a StarTran Operational Action Plan could range from \$50,000 to \$100,000 in total. A funding source to cover this cost would need to be identified as part of the City's budget process. Ideally some funds could be found to begin the analysis during Fiscal Year 2004-2005, with completion of the analysis by late calendar year 2005.